

No. 639,091.

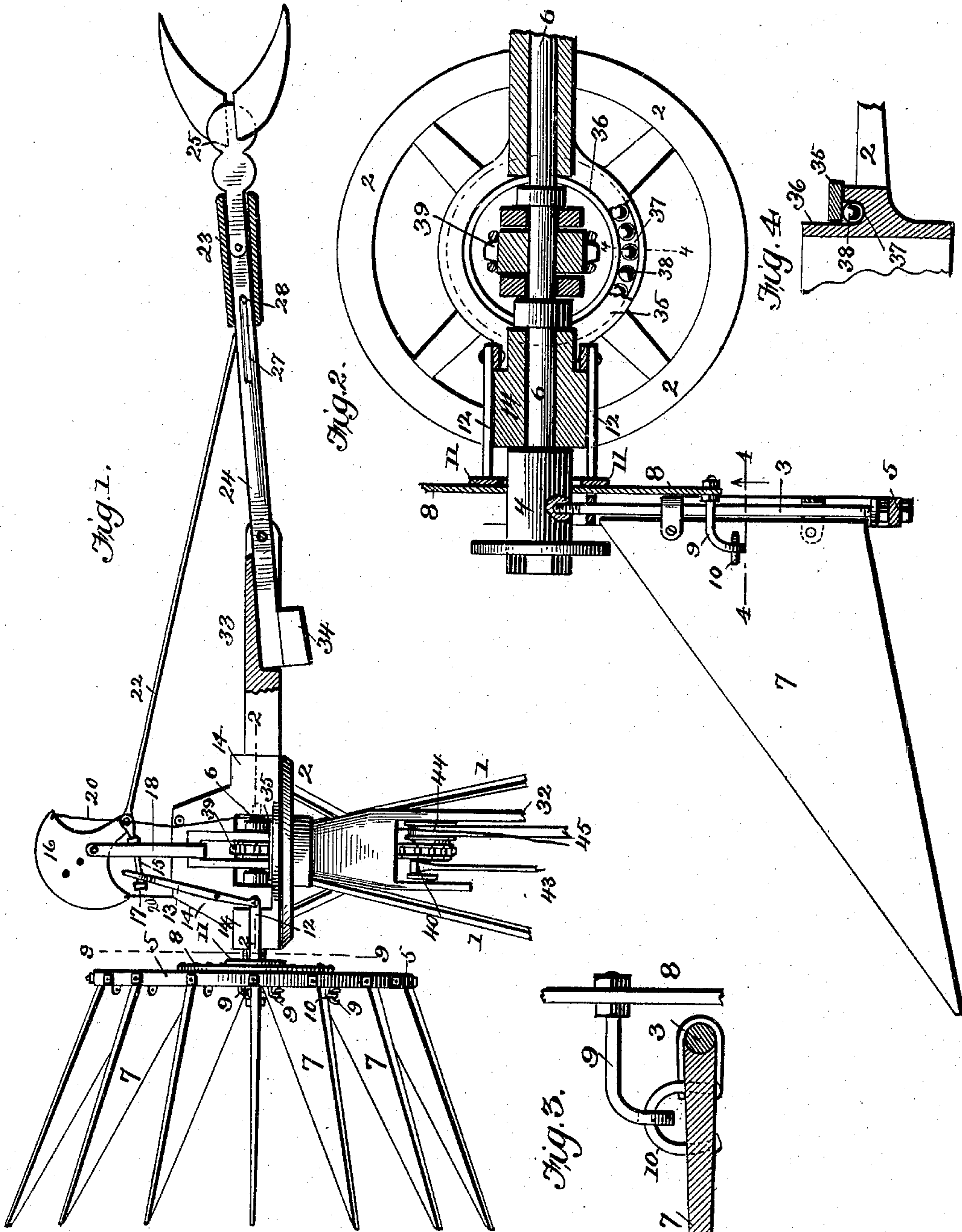
Patented Dec. 12. 1899.

C. PREJEAN.  
WINDMILL.

(Application filed June 15, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

Jos. A. Ryan  
Amos W. Harris

INVENTOR

Cleomer Prejean  
BY Munn & Co.

ATTORNEYS.

No. 639,091.

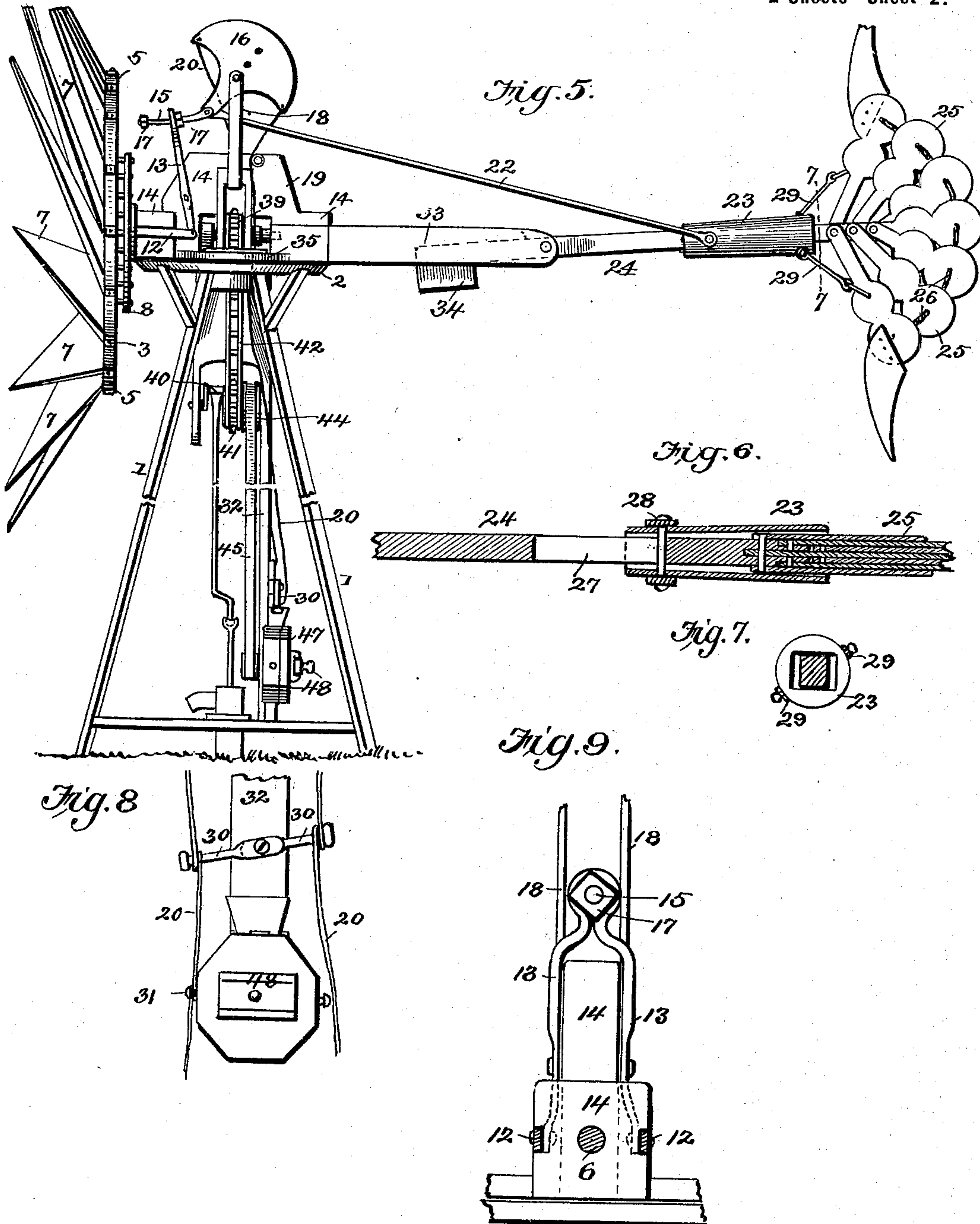
Patented Dec. 12, 1899.

C. PREJEAN.  
WINDMILL.

(Application filed June 15, 1898.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES:  
*Jos. A. Ryan*  
*Amos W. Hart*

INVENTOR  
*Clemer Prejean.*  
BY *Munn & Co.*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

CLEOMER PREJEAN, OF MILTON, LOUISIANA.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 639,091, dated December 12, 1899.

Application filed June 15, 1898. Serial No. 683,507. (No model.)

*To all whom it may concern:*

Be it known that I, CLEOMER PREJEAN, of Milton, Vermilion parish, State of Louisiana, have invented certain new and useful Improvements in Windmills, of which the following is a specification.

My invention is an improvement in that class of windmills in which a series of blades or vanes are pivoted to a wheel arranged vertically and mounted upon a horizontal axis having an extension provided with an expandible tail or guide, the whole being mounted upon a stationary base, so as to revolve horizontally.

My improvement relates specifically to the construction of the wheel proper, means for adjusting the pivoted blades or vanes to throw them into or out of the wind, and the construction of the tail, whereby it is adapted to be expanded or closed corresponding to the position of the aforesaid blades or vanes forming part of the wheel proper.

The invention further includes various features and details, which are hereinafter more fully described.

In the accompanying drawings, two sheets, Figure 1 is a side elevation, part being shown in section, of my improved windmill as it appears when thrown out of the wind. Fig. 2 is a horizontal section on the line 2 2 of Fig. 1. Fig. 3 is an enlarged detail section of a portion of the wheel proper. Fig. 4 is a section on the line 4 4 of Fig. 2. Fig. 5 is an elevation of the windmill as it appears in operation. Fig. 6 is an enlarged horizontal section on the line 6 6 of Fig. 1. Fig. 7 is a cross-section on the line 7 7 of Fig. 1. Fig. 8 is a face view of a lower portion of the windmill. Fig. 9 is a vertical section on the line 9 9 of Fig. 1.

The windmill proper is mounted rotatably upon a suitable vertical tripod or frame 1, or rather upon a horizontal circular platform 2, (see Figs. 1 and 2,) which is rigidly supported upon the aforesaid tripod. The wheel proper is composed of a series of radial spokes 3, (see Fig. 2,) which are fixed in a hub 4 and connected at their outer ends with a circular rim or band 5. Said hub 4 is fixed on the rotatable shaft 6, so that the wheel proper revolves with the latter. To each of the aforesaid spokes 3 is pivoted a vane or a blade 7, which

is triangular in form, the shorter side being next to the spoke and the longer side extending from the hub 4 outward. On the hub 4 is mounted slidably a disk or plate 8, which is connected with all the blades 7 by means of a rigid curved arm 9 and semicircular loop 10, as shown in detail, Fig. 3. It is apparent that if the disk 8 be adjusted nearer to or farther from the wheel proper the vanes or blades 7 will be adjusted correspondingly at different angles to said wheel. This is illustrated in Figs. 1 and 5, the blades 7 being shown in Fig. 1 as adjusted parallel to the shaft or axis 6, whereas in Fig. 5 they are adjusted at an acute angle to said axis or lapped one upon the other. In the first position, Fig. 1, the blades 7 do not take the wind, or, in other words, are thrown out of the wind, while in Fig. 5 they occupy the working position or are thrown into the wind, so that it acts effectively on them.

I will now describe the means for adjusting the blades through the medium of the slidable disk 8.

A ring or annular disk 11 (see Fig. 2) is arranged on the hub 4 and adapted to slide thereon, so as to be brought into contact with the aforesaid disk 8. Two bars 12 are fixed to said ring 11, and their rear ends are connected with the lower end of a bifurcated lever 13. The latter is pivoted to a block 14, which forms a part of one of the bearings of the shaft 6. Said arms are guided in longitudinal grooves in the aforesaid block 14. The upper end of said lever 13 is provided with an eye, which adapts it for slidable connection with a rod 15, pivoted to an oscillating lever 16. Said rod 15 is provided with stops 17, which limit the throw of the lever 13. The lever 16 is practically T-shaped and is pivoted in a rigid support 18, attached to the frame 19, in which the windmill-shaft 6 has its bearings. Cords 20 are attached to the lateral arms of the lever 16 and extend downward, as shown, so that they may be used manually for adjusting the lever 16 in either of the two positions shown in Figs. 1 and 5. The pendent arm of the lever 16 is connected by rod 22 with a tubular slide 23, which is mounted on the tailpiece 24 of the wheel. The tail proper is composed (see Figs. 5 and 6) of a series of blades or vanes 25,



which are pivoted to the tailpiece 24 in such manner that they are adapted to fold or open like a fan. The said blades 25 are likewise connected by a cord 26, which limits the expansion of the fan, as will be readily understood. The main reason for constructing the tail to fold, as shown in Fig. 1, is to avoid danger of its being broken in high winds and another is protection and economy of space in packing, shipping, and putting up the wheel. When the lever 16 is thrown into position shown in Fig. 1, the windmill is thrown out of action, since the blades 7 of the wheel proper are then adjusted in parallelism to the axis or shaft 6 and the tail-blades 25 are likewise folded and held in such position by means of the slide 23—that is to say, the levers 13 and 16 and rods 15 and 22 constitute means for loosely connecting the wheel-vanes 7 and tail-vanes 25, whereby both sets of vanes must open and close together, and when the tail-vanes are folded, as shown in Fig. 1, the mill is inoperative, since the head or wheel proper cannot be thrown into the wind. When the slide 23 is moved outward, it incloses a portion of the shanks of the vane 25 and brings them into parallel position with the tailpiece 24. The throw or movement of the slide 23 is limited by a slot 27, formed in the tailpiece 24, and a cross-pin 28, which is fixed in the slide and works in the aforesaid slot. For the purpose of expanding the tail-vane, as shown in Fig. 5, the slide 23 is connected with the outer vanes or blades 26 by means of the pivoted links 29. It will be seen from Fig. 1 that the lever 13 is acted on by the rod 15, attached to the lever 16, in such manner as to push the ring 11 outward or forward against the disk 8, which is in turn carried forward and held firmly in contact with the spokes 3 of the wheel proper, whereby the vanes or blades 7 are held in the position required when the wheel is to be thrown out of action. It will be further apparent that the form of the loops 10, attached to the respective blades 7, the same being semicircular or curved, as shown, and the slidable connection of the same with the curved arms of the disk 8, enable the described adjustments of the blades or vanes 7 to be readily effected.

When the lever 16 is thrown into the position shown in Fig. 5, the rear stop 17 on the rod 15 is brought in contact with the lever 13 and throws the upper end of the same forward, whereby the ring 11 is retracted, so that the disk 8 is allowed to slide back on the hub 4, and the vanes 7 are then pressed back by the force of the wind, so as to overlap each other in the manner shown in Fig. 5. At the same time that this adjustment is effected the slide 23 is drawn forward by the rod 22, and the tail vanes or blades 26 are thereby opened or expanded by the traction of the links 29, connecting them with the slide. Thus by the simple adjustment of the lever 16 as described the blades 7 of the wheel proper and the blades 25, composing the tail, are simultaneously

thrown into position for doing work or out of such position, as the case may be. The cords 20, by which the adjustment is effected, are loosely wound upon the weighted ends of pivoted arms 30, as shown in Fig. 8, and they may be further secured by winding them about fixed studs 31 for the purpose of holding the lever 16 fixed in either adjustment. The said arms 30 are pivoted together to a frame-piece 32, which is pendent from the rotatable portion of the wheel. The function of the arms is to hold the ropes 20 in place.

The tailpiece 24 is pivoted to the horizontal extension 33 of the rotatable frame, in which the wind-wheel shaft 6 has its bearing, and for this purpose the said extension 33 is slotted or grooved, as shown in Fig. 1, and the front end of the tailpiece 24 is provided with a counterbalance-weight 34. The tailpiece 24 is pivoted to part 33 for the purpose of allowing convenient adjustment and repair of the folding tail and for convenience in handling, shipping, and putting up the wheel.

The frame portions of the wheel 19 and 33 are attached to a metal ring 35, which fits on and rotates about a circular flange 36, (see Fig. 2,) which forms an integral portion of the metal platform 2. Exterior to said flange 36 there is formed a groove 37 for receiving balls 38, which serve as an antifriction-bearing for the rotatable portion of the wheel, more especially for the ring 35, as shown in Fig. 4.

On the wheel-shaft 6 is mounted a sprocket-wheel 39, and on the crank-shaft 40, which is hung below the platform 2, is mounted a similar sprocket-wheel 41. A sprocket-chain 42 runs on said wheels, as shown, and rotation is thereby imparted from the shaft 6 to the crank-shaft 40, as will be readily understood. A pump-rod 43 extends downward from the crank-shaft 40 in the usual way.

In place of employing the pump-rod I may extend the sprocket-chain down into the well and provide it with a series of buckets, so that it may operate as an endless water-elevator. In such case the lower end of such elevator would run on a sprocket-wheel fixed in the well, and a trough would be suitably arranged within the tripod or frame 1 to receive the water discharged by the buckets as they pass over the upper sprocket-wheel. I illustrate in Fig. 5 an attachment for utilizing the wind-wheel for other purposes than raising water—that is to say, I mount a pulley 44 on the crank-shaft 40, and a belt 45 runs thereon and also on another pulley 46, which is keyed on the shaft of a grinding-mill 47, attached to the lower end of the pendent frame-piece 32. It will be seen that when the crank-shaft 40 is rotated the belt 45 will drive the grinding-mill correspondingly. Said mill may be utilized for grinding coffee, corn, oats, or other material. A screw 48 is applied to the mill for adjusting a movable grinding-surface within the same.

What I claim is—



1. In a windmill the combination with the expansible tail composed of a series of pivoted blades or vanes adapted to open and close like a fan, of a slide which is connected with said vanes to open or close them, lever mechanism, and a means of connection between the same and the aforesaid slide, whereby the latter may be adjusted, as specified.

2. In a windmill the combination with the tailpiece, and a series of vanes pivoted thereto in the manner shown, whereby they may be folded with their shanks parallel to said tailpiece, a tubular slide which works on said tailpiece and is adapted to inclose the shanks of the vanes for holding them closed, and means for adjusting the slide lengthwise, substantially as shown and described.

3. In a windmill the combination with the hinged blades or vanes forming part of the wheel proper, and the pivoted blades or vanes composing the tail, of means for folding or opening the latter, and means for throwing the wheel blades or vanes into or out of the wind, the said means being connected with both sets of blades or vanes, and thereby adapted to operate both simultaneously, substantially as shown and described.

4. In a windmill the combination, with the blades or vanes forming part of the wheel proper and the vanes or blades composing

the tail, of the described means for adjusting both sets of blades simultaneously, the same consisting of a slidable disk having a slidable connection with the wheel-blades, a ring adapted to act on said disk for forcing it against the wheel, pivoted levers connected with said ring, a slide adapted to inclose the shanks of the tail-blades, rods connecting the latter therewith, and a rod which connects the said slide with the lever mechanism, substantially as shown and described.

5. In a windmill the combination, with the pivoted tail-blades, the tailpiece 24, having a lengthwise slot, of the adjustable slide 23, having a transverse pin which traverses said slot, and means for adjusting said slide for opening or closing the tail, as shown and described.

6. In a windmill the combination, with a horizontal extension forming part of the rotatable portion of the mill, of the pivoted tailpiece, the expansible tail, and the slide for adjusting the latter, also means for adjusting the slide on the tailpiece, substantially as shown and described.

CLEOMER PREJEAN.

Witnesses:

F. Z. POWER,  
VALSIN CASTILLA.